

SQL Queries for Hotel Management System



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Cancellations by Quarters

```
SELECT
    EXTRACT(YEAR FROM "Cancel_Date") AS year,
    EXTRACT(QUARTER FROM "Cancel_Date") AS quarter,
    COUNT("Cancel_ID") AS Cancel_count
FROM
    "Cancels"
GROUP BY
    year, quarter
ORDER BY
    year, quarter;
```

| | year numeric 🔒 | quarter numeric 🔒 | cancel_count bigint 🔒 |
|---|-------------------|----------------------|--------------------------|
| 1 | 2024 | 1 | 5 |
| 2 | 2024 | 2 | 6 |
| 3 | 2024 | 3 | 6 |
| 4 | 2024 | 4 | 3 |

Cancellation Rate by Quarter

```
WITH CancelCounts AS (  
  SELECT  
    EXTRACT(YEAR FROM "Cancel_Date") AS year,  
    EXTRACT(QUARTER FROM "Cancel_Date") AS quarter,  
    COUNT(*) AS cancel_count  
  FROM  
    "Cancels"  
  GROUP BY  
    year, quarter  
,  
TotalBookings AS (  
  SELECT  
    EXTRACT(YEAR FROM "Booking_Date") AS year,  
    EXTRACT(QUARTER FROM "Booking_Date") AS quarter,  
    COUNT(*) AS total_bookings  
  FROM  
    "Bookings"  
  GROUP BY  
    year, quarter  
)  
SELECT  
  cc.year,  
  cc.quarter,  
  (cc.cancel_count::float / tb.total_bookings) * 100 AS cancel_rate_percentage  
FROM  
  CancelCounts cc  
JOIN  
  TotalBookings tb  
ON  
  cc.year = tb.year AND cc.quarter = tb.quarter  
ORDER BY  
  cc.year, cc.quarter;
```

| | year numeric | quarter numeric | cancel_rate_percentage double precision |
|---|-----------------|--------------------|--|
| 1 | 2024 | 1 | 35.714285714285715 |
| 2 | 2024 | 2 | 50 |
| 3 | 2024 | 3 | 50 |
| 4 | 2024 | 4 | 25 |

Cancellations by Reason

```
SELECT
    "Cancel_Reason",
    COUNT(*) AS cancellation_count
FROM
    "Cancels"
GROUP BY
    "Cancel_Reason"
ORDER BY
    cancellation_count DESC;
```

| | Cancel_Reason character varying (255) 🔒 | cancellation_count bigint 🔒 |
|---|--|--------------------------------|
| 1 | Change of plans | 6 |
| 2 | Personal reasons | 4 |
| 3 | Illness | 4 |
| 4 | Found a better deal | 3 |
| 5 | Booking error | 3 |

Total Number of Bookings and Total Revenue for Each Quarter

```
SELECT
    EXTRACT(YEAR FROM "Booking_Date") AS year,
    EXTRACT(QUARTER FROM "Booking_Date") AS quarter,
    COUNT(*) AS total_bookings,
    SUM(p."Amount") AS total_revenue
FROM
    "Bookings" b
JOIN
    "Payments" p ON b."Booking_ID" = p."Booking_ID"
GROUP BY
    year,
    quarter
ORDER BY
    year,
    quarter;
```

| | year numeric 🔒 | quarter numeric 🔒 | total_bookings bigint 🔒 | total_revenue numeric 🔒 |
|---|-------------------|----------------------|----------------------------|----------------------------|
| 1 | 2024 | 1 | 14 | 9350.00 |
| 2 | 2024 | 2 | 12 | 8330.00 |
| 3 | 2024 | 3 | 12 | 8780.00 |
| 4 | 2024 | 4 | 12 | 8700.00 |

Total Revenue for Each Hotel Within the Specified Date Range

```
SELECT
    r."Hotel_ID",
    SUM(p."Amount") AS total_revenue
FROM
    "Bookings" b
JOIN
    "Rooms" r ON b."Room_ID" = r."Room_ID"
JOIN
    "Payments" p ON b."Booking_ID" = p."Booking_ID"
JOIN
    hotels h ON r."Hotel_ID" = h."Hotel_ID"
WHERE
    p."Payment_Date" BETWEEN '2024-01-01'
    AND '2024-12-31'
GROUP BY
    r."Hotel_ID";
```

| | Hotel_ID bigint | total_revenue numeric |
|----|--------------------|--------------------------|
| 1 | 4 | 1990.00 |
| 2 | 10 | 2100.00 |
| 3 | 9 | 2100.00 |
| 4 | 7 | 2170.00 |
| 5 | 15 | 2170.00 |
| 6 | 6 | 2150.00 |
| 7 | 12 | 2100.00 |
| 8 | 14 | 2150.00 |
| 9 | 3 | 2140.00 |
| 10 | 17 | 1400.00 |
| 11 | 13 | 2250.00 |
| 12 | 1 | 1750.00 |
| 13 | 5 | 2230.00 |
| 14 | 2 | 2000.00 |

Rooms That are not Reserved During a Specified Date Range

```
WITH ReservedRooms AS (  
    SELECT  
        r."Room_ID"  
    FROM  
        "Bookings" b  
    JOIN  
        "Rooms" r ON b."Room_ID" = r."Room_ID"  
    WHERE  
        (b."CheckIn_Date" <= '2024-09-07' AND b."Check_Out_Date" >= '2024-09-01')  
    GROUP BY  
        r."Room_ID"  
)  
SELECT  
    r."Room_ID",  
    r."Hotel_ID"  
FROM  
    "Rooms" r  
LEFT JOIN  
    ReservedRooms rr ON r."Room_ID" = rr."Room_ID"  
WHERE  
    rr."Room_ID" IS NULL  
    AND r."Occupancy_Status" = false  
ORDER BY  
    r."Room_ID";
```

| | Room_ID [PK] integer  | Hotel_ID bigint  |
|---|---|--|
| 1 | 1 | 1 |
| 2 | 3 | 1 |
| 3 | 5 | 2 |
| 4 | 7 | 3 |
| 5 | 9 | 3 |
| 6 | 11 | 4 |
| 7 | 13 | 5 |
| 8 | 15 | 5 |

Booking Count for Each Room Type

```
SELECT
    r."Room_Type_ID",
    rt."Name" AS room_type_name,
    COUNT(b."Booking_ID") AS booking_count
FROM
    "Bookings" b
JOIN
    "Rooms" r ON b."Room_ID" = r."Room_ID"
JOIN
    "Room_Type" rt ON r."Room_Type_ID" = rt."Type_ID"
GROUP BY
    r."Room_Type_ID", rt."Name"
ORDER BY
    booking_count DESC;
```

| | Room_Type_ID bigint | room_type_name character varying (255) | booking_count bigint |
|---|------------------------|---|-------------------------|
| 1 | 2 | Double Room | 25 |
| 2 | 1 | Single Room | 13 |
| 3 | 3 | Suite | 12 |

Average Length of Stay (ALOS)

```
SELECT  
    AVG("Check_Out_Date" - "CheckIn_Date") AS ALOS  
FROM  
    "Bookings";
```

| | alos | |
|---|----------------------|---|
| | numeric |  |
| 1 | 5.280000000000000000 | |

Occupancy Rate

```
WITH TotalRooms AS (  
    SELECT  
        "Hotel_ID",  
        COUNT(*) AS total_rooms  
    FROM  
        "Rooms"  
    WHERE  
        "Hotel_ID" = 1  
    GROUP BY  
        "Hotel_ID"  
),  
OccupiedRooms AS (  
    SELECT  
        r."Hotel_ID",  
        COUNT(DISTINCT r."Room_ID") AS occupied_rooms  
    FROM  
        "Bookings" b  
    JOIN  
        "Rooms" r ON b."Room_ID" = r."Room_ID"  
    WHERE  
        r."Hotel_ID" = 1  
        AND b."CheckIn_Date" <= '2024-12-31'  
        AND b."Check_Out_Date" >= '2024-01-01'  
    GROUP BY  
        r."Hotel_ID"  
)  
SELECT  
    t."Hotel_ID",  
    (COALESCE(o.occupied_rooms, 0)::FLOAT / t.total_rooms)  
    * 100 AS occupancy_rate_percentage  
FROM  
    TotalRooms t  
LEFT JOIN  
    OccupiedRooms o ON t."Hotel_ID" = o."Hotel_ID";
```

| | Hotel_ID bigint 🔒 | occupancy_rate_percentage double precision 🔒 |
|---|----------------------|---|
| 1 | 1 | 100 |

Average daily rate (ADR)

```
SELECT
    r."Hotel_ID",
    AVG(p."Amount") AS average_daily_rate
FROM
    "Bookings" b
JOIN
    "Payments" p ON b."Booking_ID" = p."Booking_ID"
JOIN
    "Rooms" r ON b."Room_ID" = r."Room_ID"
WHERE
    b."CheckIn_Date" <= '2024-12-31'
    AND b."Check_Out_Date" >= '2024-01-01'
GROUP BY
    r."Hotel_ID"
ORDER BY
    r."Hotel_ID";
```

| | Hotel_ID bigint | average_daily_rate numeric |
|----|--------------------|-------------------------------|
| 1 | 1 | 583.33333333333333 |
| 2 | 2 | 666.66666666666667 |
| 3 | 3 | 713.33333333333333 |
| 4 | 4 | 663.33333333333333 |
| 5 | 5 | 743.33333333333333 |
| 6 | 6 | 716.66666666666667 |
| 7 | 7 | 723.33333333333333 |
| 8 | 8 | 726.66666666666667 |
| 9 | 9 | 700.00000000000000 |
| 10 | 10 | 700.00000000000000 |
| 11 | 11 | 700.00000000000000 |
| 12 | 12 | 700.00000000000000 |
| 13 | 13 | 750.00000000000000 |
| 14 | 14 | 716.66666666666667 |